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23.0.A Daily Outline

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April 16, 2015- Chem 444A: Renewable and Non-Renewable Energy Sources

Today we will be exploring different types of fuel sources used in the United States and learn how these chemical processes are important in daily life. Each of you have read a document for a particular renewable or non-renewable energy source and you will use this knowledge to solve a challenge question.

Role Assignments

Manager- Keep track of time and ensure all group members are participating

Recorder- Record and include any questions the group may have

Spokesperson- 2 people with least experience in this role

Reflector- Person with a strong science background (Reflect on how the group is making progress)

Task 1: Discussion of Previous Night's Reading

Each of you are sitting in a group with people who have also read the same document as you. You will be the expert on your fuel and later will be discussing your findings with others. Within your group, discuss your findings and follow the questions below to guide your discussion. Record your summary in the recorder report. Don't forget to back up your claims with evidence! (NOTE: There is a copy of the handout for reference)

- What is combustion and how does this relate to your particular fuel source?
- How is your fuel created/ and or formed?
- Briefly describe the process of how your fuel is burned? Pay attention to where heat is being transferred, generated, released or taken in.
- What impacts does your fuel have on the environment or society as a whole?

Now is time for the reflector to briefly reflect on how the group made progress towards their objectives.

Task 2: Formation of Non-Renewable and Renewable Energy Groups (CHALLENGE QUESTION TIME)

Now that you have discussed the previous reading with your group, you are now the expert on your specific fuel source. Determine roles again and obtain a new recorder report. Make sure each person has a different role than last time. You are now going to join a group of experts on other fuel sources and describe your fuel to them.

Look over the handout labeled "Useful Information" on your table. Discuss this with your group. Once everyone has had the chance to describe their fuel type and look over the handout, you can now tackle the challenge question.

Challenge Question:

Each of you are a member of the United States Government and it is your goal today to determine which fuel source (Coal, Oil, Natural Gas, Biodiesel, or Hydrogen Fuel) the United States should invest in as a primary fuel source. You are determining what the United States primary fuel source should be. In your discussion, you should incorporate concepts related to energy and heat. Don't forget to back up your statements with evidence!

Report your decision on the recorder report and provide an explanation as to why your group chose that particular fuel source. If the group cannot come to a consensus, report on both decisions and provide an explanation for each.

Now is the time again for the reflector to briefly discuss how the group made progress towards their objectives.

Task 3: Conference Time!

The spokesperson will now report to the class as a whole their decision and include some reasons why the group chose that fuel type. Feel free to ask your classmates questions.

Post Class Assignment:

Compile your thoughts on what was discussed in class today. Answer the following questions in paragraph format. The assignment should be typed and a printed copy is due 4/21 in class.

- What were your primary thoughts on global warming, renewable and non-renewable energy sources?
- How did these thoughts or outlook on fossil fuels, renewable energy, or global warming change or not change based on your discussion today in class?
- Did any of the information about fossil fuels, global warming, and renewable energy surprise you? If so, please explain what it was and how it surprised you.